

NETL Microhole Technology Development - II

DE-FC26-0515483

Advanced Monobore Concept, Development of CFEX® Self-Expanding Tubulars

August 16, 2005

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Objectives of the Project

- Proof-of-concept for self-expansion principles
- Create applicability of expandables for MHT
- Improve market condition of expandable technologies
- Work towards real-time repair and delivery downhole
- Fundamental demonstration of MoD system viability

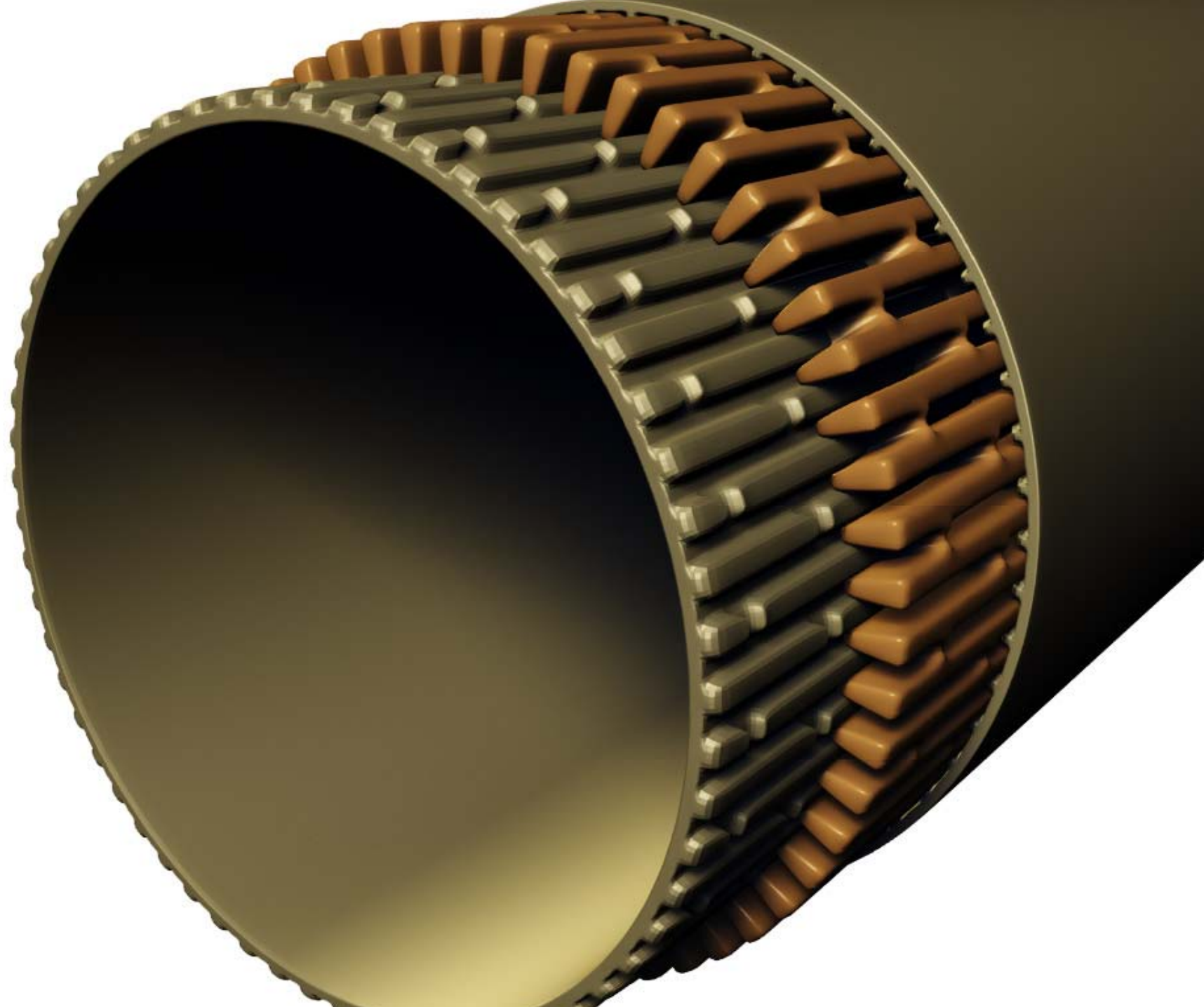
Technology Overview

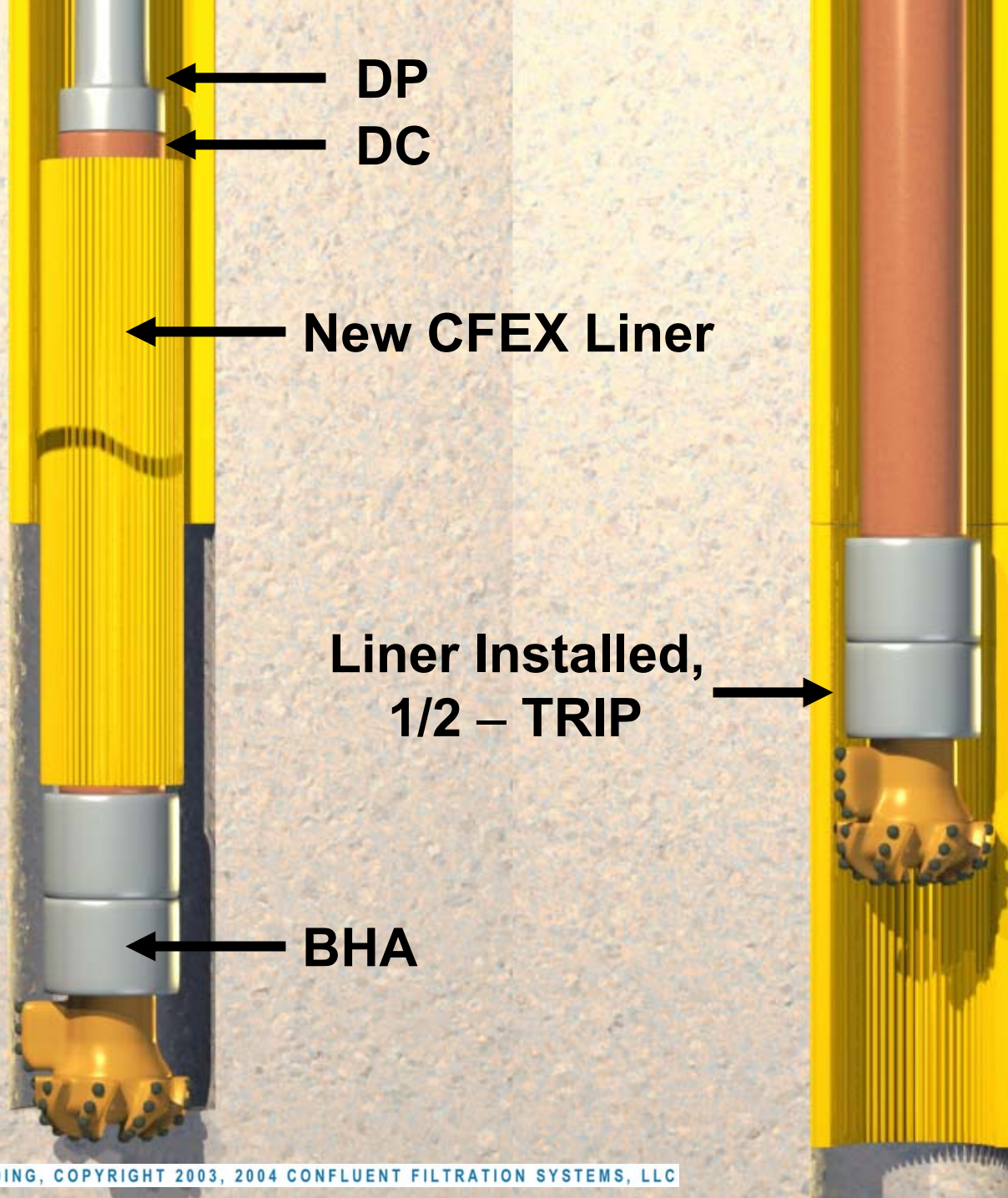
Principles of Self-Expansion

- Construct oversize tubular comprised of flexible cells
- Emphasis on elastic-phase compression
- Strain energy capture at factory, recover downhole
- Controlled destruction of strain securement
- Elastic-phase bias and compliance downhole

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DP

DC

New CFEX Liner

Liner Installed,
1/2 - TRIP

BHA

Objectives of the Technology

- **Improve TD-reliability & drilling economics**
- **Maximize MHT clearances and volumes**
- **Reduce cementing & peripheral costs**
- **Further minimize MHT footprint, impact & costs**

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Related MHT Interest Areas

- Integral drilling devices
- High-expansion rate, through-tubing products
- High-volume production tubulars
- Deep-drilling
- Others

Deliverables

- Engineered concept and design
- Prototype
- Physical test report
- Field demonstration
- Manufacturing study

Current Status

During the first 180 days of the program:

- Capture and development of broad technical concept
- Devised two optimal geometries based on user-preferences
 - 200%+ expansion rate capability
 - Indefinite wall-thickness
 - Scalable to any diameter
 - Designs are otherwise meeting or exceeding mechanical specifications
- Currently entering final phase, detailed analysis through testing